Application No.: 10/564,507 MAT-8793US

Amendment Dated:

November 6, 2006

Reply to Office Action of: August 4, 2006

## Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

## **Listing of Claims:**

1. (Currently Amended) A method for determining <u>a</u> deterioration of a capacitor, <u>the capacitor</u> including a pair of electrode bodies and <u>an</u> electrolytic solution provided between the electrode bodies, <u>the method comprising the steps of:</u> by applying an AC voltage to the capacitor to measure an impedance characteristic at a frequency of the AC voltage, comprising:

measuring a characteristic value of the capacitor by applying an AC voltage to the capacitor at a measurement frequency; and

comparing the measured characteristic value with a predetermined characteristic value to determine the deterioration of the capacitor, the predetermined characteristic value selected from a predetermined impedance characteristic at the measurement frequency, the predetermined impedance characteristic corresponding to the deterioration of the electrolytic solution,

wherein the measurement frequency is selected to be less than a frequency corresponding to an inflection point formed in the predetermined impedance characteristic.

previously calculating an inflection point appearing in the impedance characteristic due to the deterioration of the electrolytic solution to compare a characteristic value based on an impedance value in a frequency region lower than the inflection point with a predetermined characteristic value, thereby determining the deterioration.

2. (Currently Amended) The method for determining the deterioration of a capacitor according to Claim 1, wherein when the impedance characteristic is displayed such that a frequency value is higher while moving along a horizontal axis to the right and an impedance value is higher while moving along a vertical axis to the top, wherein

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the inflection point is a first inflection point having a convex shape to-in a direction of increasing impedance, the frequency is a first frequency the top and another inflection point different from the inflection point is the predetermined impedance characteristic includes a second inflection point having a convex shape in a direction of decreasing impedanceto the bottom, the second inflection point being located at a second frequency that is less than the first frequency.

- 3. (Currently Amended) The method for determining the deterioration of a capacitor according to Claim 2, wherein the characteristic value is an impedance value at a frequency that is lower than measurement frequency is selected from between the first frequency and the second frequency inflection point and that is higher than the second inflection point.
- The method for determining the deterioration of a 4. (Currently Amended) capacitor according to Claim 21, wherein the characteristic value is a value that is calculated based on a correlation between an impedance value that is calculated by previously deteriorating a same type capacitor and a DC capacitor resistance value at a frequency lower than the first inflection point and higher than the second inflection point, wherein the predetermined impedance characteristic is calculated based on a correlation between a deterioration impedance characteristic and a predetermined DC capacitor resistance, the deterioration impedance characteristic calculated by deteriorating a same type of capacitor,

the step of measuring the characteristic value includes measuring a DC capacitor resistance value of the capacitor using the applied AC voltage at the measurement frequency, and

the step of comparing the measured characteristic value includes calculating a ratio between the measured DC capacitor resistance value and the measured characteristic value, the ratio being compared with the predetermined characteristic value.

5. (Currently Amended) The method for determining the deterioration of a capacitor-according to Claim 2, wherein a frequency region that is less than the second frequency corresponds to a region of the predetermined impedance characteristic

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representing the characteristic value is a capacity component obtained based on the associated with a voltage change due to the a self-discharge of the capacitor and the measurement frequency is selected from within the frequency regionat a frequency lower than the first inflection point and lower than the second inflection point.

(New) A method for reporting a deterioration of a capacitor mounted in an 6. electrical apparatus including a display, the method comprising the steps of:

measuring a characteristic value of the capacitor by applying an AC voltage to the capacitor at a measurement frequency;

comparing the measured characteristic value with a predetermined impedance characteristic at the measurement frequency, the predetermined impedance characteristic corresponding to a deterioration of an electrolytic solution of the capacitor at the measurement frequency; and

displaying the deterioration of the capacitor on the display based on the comparison,

wherein the measurement frequency is selected to be less than a frequency corresponding to an inflection point in the predetermined impedance characteristic.

(New) The method according to Claim 6, wherein the predetermined impedance 7. characteristic is calculated based on a correlation between a deterioration impedance characteristic and a predetermined DC capacitor resistance, the deterioration impedance characteristic calculated by deteriorating a same type of capacitor,

the step of measuring the characteristic value includes measuring a DC capacitor resistance value of the capacitor using the applied AC voltage at the measurement frequency, and

the step of comparing the measured characteristic value includes calculating a ratio between the measured DC capacitor resistance value and the measured characteristic value, the ratio being compared with the predetermined impedance characteristic value at the measurement frequency.

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8. (New) The method according to Claim 6, wherein the inflection point is a first inflection point having a convex shape in a direction of increasing impedance, the frequency is a first frequency and the predetermined impedance characteristic includes a second inflection point having a convex shape in a direction of decreasing impedance, the second inflection point being located at a second frequency that is less than the first frequency.

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- 9. (New) The method according to Claim 8, wherein the measurement frequency is selected from between the first frequency and the second frequency.
- 10. (New) The method according to Claim 8, wherein a frequency region that is less than the second frequency corresponds to a region of the predetermined impedance characteristic representing a capacity component associated with a voltage change due to a self-discharge of the capacitor and the measurement frequency is selected from within the frequency region.